

## CLAIMS

- 1           1.       A medium for a scintillation assay, said medium comprising:  
2               a first scintillator material which is a fluorescent Coumarin dye having  
3               a Stokes shift of at least 50 nm.
- 1           2.       The medium of claim 1, wherein said dye is further  
2               characterized in that it has a fluorescent emission in the range of 460-500 nm.
- 1           3.       The medium of claim 1, wherein said dye has a Stokes shift of  
2               at least 100 nm.
- 1           4.       The medium of claim 1, wherein said medium further includes a  
2               second scintillator material.
- 1           5.       The medium of claim 4, wherein said second scintillator  
2               material is selected from the group consisting of: PPO, bis-MSB, DPA, and  
3               combinations thereof.
- 1           6.       The medium of claim 1, wherein said medium is a solid polymer  
2               having said Coumarin dye incorporated therein.
- 1           7.       The medium of claim 6, further including BiBuQ incorporated  
2               therein.
- 1           8.       The medium of claim 1, wherein said medium comprises a  
2               liquid having said Coumarin dye dissolved therein.
- 1           9.       A method for carrying out an assay for detecting or quantifying  
2               a radio nuclide emission, said method comprising the steps of:  
3               providing a scintillation medium which contains a first scintillator  
4               material which is a Coumarin dye having a Stokes shift of at least 50 nm;

5           contacting said scintillation medium with an analyte suspected of  
6           having said radionuclide therein; and  
7           detecting any scintillation caused in said medium by said radionuclide.

1           10.    The method of claim 9, wherein said Coumarin dye is further  
2           characterized in that it has a fluorescent emission at 460-500 nm.

1           11.    The method of claim 9, wherein said Coumarin dye has a Stokes  
2           shift of at least 100 nm.

1           12.    The method of claim 9, wherein said scintillation medium is a  
2           solid member.

1           13.    The method of claim 9, wherein said scintillation medium is a  
2           liquid.

1           14.    The method of claim 9, wherein said scintillation medium  
2           further includes a second scintillator material.

1           15.    The method of claim 14, wherein said second scintillator  
2           material is selected from the group consisting of: PPO, bis-MSB, DPA, BiBuQ,  
3           and combinations thereof.

1           16.    A solid state member for a scintillation proximity assay, said  
2           member comprising:

3           a polymeric material having a first scintillator material which is a  
4           fluorescent Coumarin dye incorporated therein, said Coumarin dye further  
5           characterized in that it has a Stokes shift of at least 50 nm.

1           17.    The member of claim 16, wherein said dye is further  
2           characterized in that it has a fluorescent emission in the range of 460-500 nm.

1           18.    The member of claim 16, wherein said dye is further  
2    characterized in that it has Stokes shift of at least 100 nm.

1           19.    The member of claim 16, wherein said Coumarin dye is selected  
2    from the group consisting of Coumarin 153, Coumarin 152, and combinations  
3    thereof.

1           20.    The member of claim 16, further including a second scintillator  
2    material therein.

1           21.    The member of claim 20, wherein said second scintillator  
2    material is selected from the group consisting of: PPO, bis-MSB, DPA, BiBuQ,  
3    and combinations thereof.

1           22.    The member claim 16, wherein said polymeric material is  
2    configured as a bead.

1           23.    The member of claim 16, wherein said polymeric material is  
2    configured as a vessel for retaining a liquid.

1           24.    The member of claim 16, wherein said polymeric material is  
2    applied to the surface of a vessel configured to retain a liquid.

1           25.    A liquid scintillation cocktail comprising:  
2           a first scintillator material which is a fluorescent Coumarin dye having  
3           a Stokes shift of at least 50 nm; a second scintillator material selected from the  
4           group consisting of: PPO, bis-MSB, DPA, combinations thereof; and  
5           a solvent for said first and second scintillator materials.

1           26.    The liquid scintillation cocktail of claim 25, wherein said  
2    Coumarin dye is further characterized in that it has a fluorescent emission in  
3    the range of 460-500 nm.

1           27.    The liquid scintillation cocktail of claim 25, wherein said  
2    Coumarin dye is further characterized in that has a Stokes shift of at least 100  
3    nm.